# EXPLORING GLOBAL TRENDS IN RESEARCH ON E-GOVERNMENT: A BIBLIOMETRIC REVIEW

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E-Government, Bibliometric Analysis, Global Trends, Information and Communication Technology (ICT)

**ABSTRACT**

*This study provides a novel and comprehensive bibliometric analysis of global e-government research, examining 2,119 publications from Scopus (2017-2024) to map emerging themes, leading contributors, and the evolution of research on e-government services. Employing Scopus tools, Excel, and VOSviewer, the study analyzes publication patterns, citations, and collaborations across countries, institutions, and researchers. Key findings indicate steady growth in e-government research, with Asia, particularly Indonesia and China, making the largest contributions, primarily in computer science, social sciences, and business management. Universitas Indonesia emerged as the top institution, with Government Information Quarterly and Sustainability Switzerland as the most influential sources. While highlighting significant collaborative research, the study notes limited involvement from less-developed nations. Distinguishing itself from prior studies, this research offers a unique, comprehensive bibliometric mapping of the e-government literature, revealing its interdisciplinary nature and underscoring the necessity for greater global inclusivity. By synthesizing trends and patterns across a substantial body of work, this study offers a distinct perspective on the development and current landscape of e-government research, concluding that addressing regional disparities and promoting broader international collaboration are vital for maximizing its impact on public sector policy and strategic management.*

## 1.1 Introduction

Governments fundamentally serve their citizens by providing essential services and meeting basic needs (Ogu & Chukwurah, 2023). To achieve these objectives, many are increasingly leveraging information and communication technology (ICT) to enhance service delivery, making it more accessible, efficient, and responsive (Ali, 2023). Consequently, e-government has become a critical element of modern governance, facilitating electronic interactions between governments and their constituents (Ogu et al., 2023; Manaf et al., 2023). This transition has been linked to improved service delivery, increased transparency, and greater accountability (Jejeniwa et al., 2024), transforming how governments engage with citizens, businesses, and other stakeholders (Ali, 2023).

Globally, countries have implemented diverse e-government initiatives with varying degrees of success. The extent of adoption and impact, however, differ significantly across regions and nations. In the African context, countries like Nigeria are exploring both the opportunities and challenges of e-government implementation (Shafiu, et al, 2023). Despite progress in some areas, Nigeria's e-government potential is still hampered by inadequate infrastructure, low digital literacy, and limited government capacity (Shafiu, 2020). While some Nigerian states, such as Kaduna, have launched e-government initiatives to improve subnational service delivery and governance, these efforts face obstacles like insufficient resources, inadequate infrastructure, and resistance to change (Oghuvbu et al., 2022).

Although existing literature from scholars like Jejeniwa et al. (2024), Ogu and Chukwurah (2023), Laila et al. (2020), Dibie and Quadri (2018), and Robert and Quadri (2018) offers valuable contributions to understanding e-government, a comprehensive, holistic view of the global research landscape remains elusive. Many studies tend to focus on specific regions, technologies, or particular aspects of e-government. Comprehensive, data-driven studies on the field's evolution, thematic areas, and global collaboration are not widespread. This research aims to bridge this gap by providing a comprehensive bibliometric review of e-government research. By analyzing a large dataset of publications, this study will offer insights into emerging trends, identify leading contributors, and map potential future directions for the field. Ultimately, a richer understanding of the worldwide challenges and opportunities tied to e-government can guide policymakers and practitioners in developing strategies to maximize its benefits and enhance citizens' quality of life globally.

## 1.2 Justification

The effective implementation of e-government holds immense potential for improving public service delivery, enhancing transparency, and fostering citizen engagement (Abdullahi, 2023). However, despite significant investments and growing scholarly attention, the full potential of e-government remains unrealized in many contexts (Ezeobele et al., 2021). Similarly, there is a notable gap in the broader understanding of the e-government research landscape. While individual studies explore specific technologies, regional implementations, or policy aspects, a comprehensive, data-driven analysis of the field's global evolution, thematic trends, and collaborative networks is conspicuously absent (Abdullahi, 2023). This lack of holistic insight hinders the ability of researchers, policymakers, and practitioners to effectively identify key areas for future research, leverage successful strategies, and address persistent challenges (Umar, et al., 2023).

This study addresses this critical gap by providing a comprehensive bibliometric analysis of e-government research from 2017 to 2024. By systematically examining trends and patterns in the existing literature, this research explores the intricate relationships between various concepts from theoretical, methodological, and practical viewpoints. The goal is to determine whether the connection between e-government and its effectiveness is positive, neutral, or negative and to pinpoint the factors affecting the adoption and success of e-government initiatives. Ultimately, this research seeks to contribute to a more informed and strategic approach to e-government research and implementation, maximizing its impact on policy development, service delivery, and citizen well-being. To this end, this research intends to bridge this gap by exploring the following research questions:

i. RQ1: What are the emerging trends and major contributions in the field of e-government research?

ii. RQ2: Which countries, institutions, and authors are leading in e-government research?

iii. RQ3: Which publications and authors have the most influence within the e-government research landscape?

iv. RQ4: What are the main themes and areas of focus in e-government research?

v. RQ5: What are the potential future directions for e-government research?

## 2.1 Concept of E-Government

E-government is defined as a system that uses digital tools to provide information and services to the public, as emphasized by Almutairi et al. (2020). This approach includes leveraging the internet, web technologies, and mobile computing to transform interactions between government, citizens, and other businesses, (Chukwuemeka et al., 2018). In addition, Omebe (2019) describes e-government as the use of technology (ICT) to streamline public transactions, facilitate information exchange, and improve service delivery. Ali (2023) further elaborated that e-government focuses on enhancing internal operations and integrating various departments to increase efficiency. Similarly, Onuigbo and Eme (2018) defined e-government as the application of ICT in the public sector to achieve several goals, including improving service delivery and information dissemination, accountability, transparency, and efficiency.

Recent bibliometric analyses have begun to map the landscape of e-government research. For instance, Song et al. (2024) categorized e-government research into distinct phases, noting an evolution from basic technological implementation to more complex issues such as government transparency and smart city concepts. Other studies have highlighted areas like cloud technology adoption, risk management, and the increasing prominence of e-participation (Crăciun et al., 2023; Ravšelj & Umek, 2022). Irfan and Jabeen (2021) used keyword analysis to identify key themes like digital inclusion and e-government effectiveness.

However, while these studies offer valuable insights, they often focus on specific aspects or periods within the broader e-government landscape. There is a need for a more comprehensive, up-to-date bibliometric analysis that synthesizes the diverse trends and themes within the field to provide a clearer understanding of its current state and future directions. thus, contributing to a more informed and strategic discourse within the field.

## 3.1 Method

To examine relevant documents, this study employed a bibliometric approach analyzing 2,119 e-government publications indexed in the Scopus database (2017-2024). Quantitative and statistical methods, including Scopus's analysis tools, Microsoft Excel 2019 (for frequency and proportion calculations and graph generation), and VOSviewer (for visualizing bibliometric connections), were used to identify research trends and patterns, thus providing a foundation for future studies.

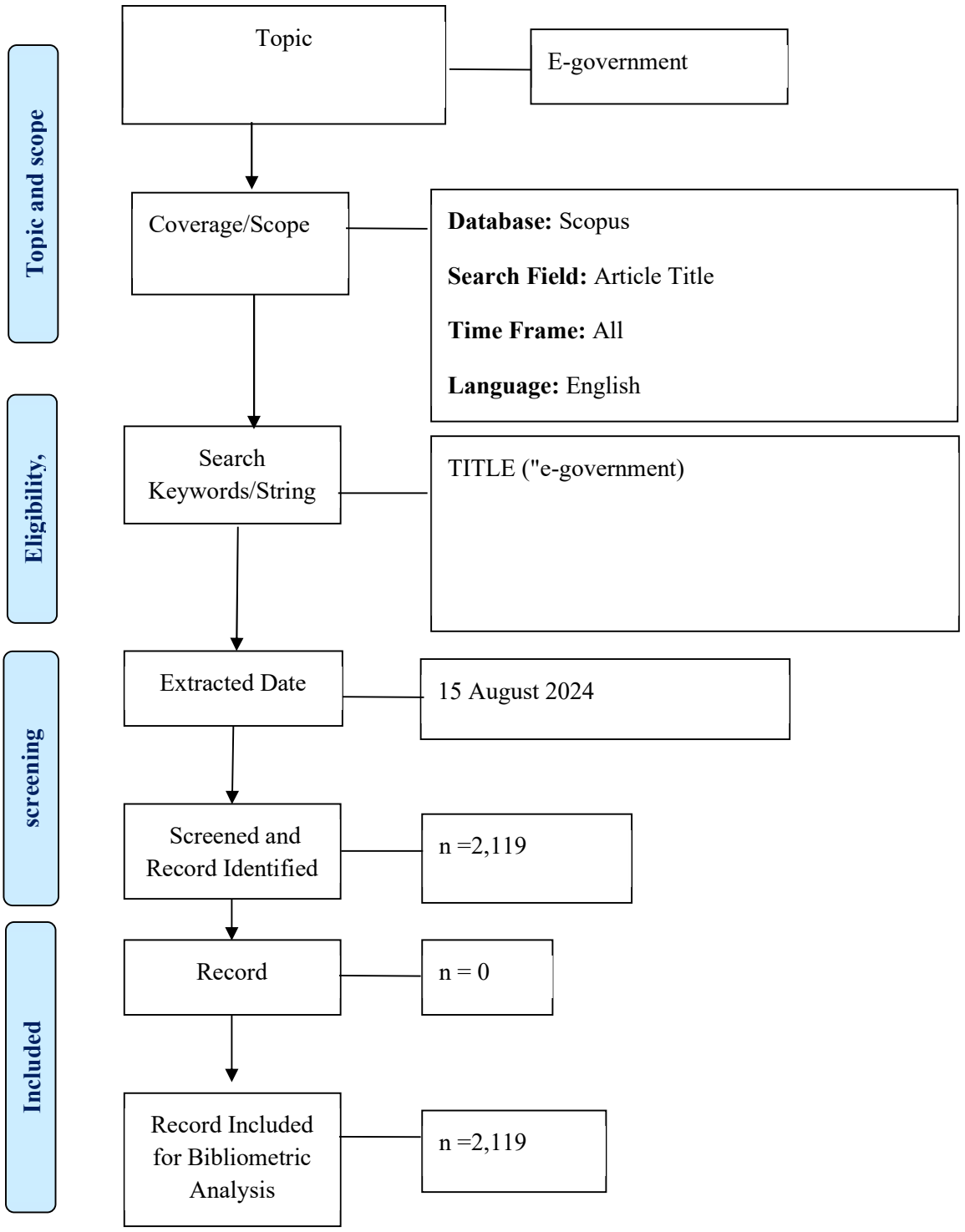



Fig. 1 PRISMA diagram showing the search strategy

## 4.0 Results

This section details the results of the bibliometric analysis, providing answers to key research questions concerning emerging trends, leading contributors, influential publications, main themes, and prospective research areas within the field of e-government. The analysis examines annual publication trends, source journals, document types, and languages to gain a comprehensive understanding of the field.

### 4.1 Publications by years

Table 1 illustrates the annual publication trends in e-government research from 2017 to 2024, showing a fluctuating pattern with periods of both growth and decline in publication numbers. The peak number of publications occurred in 2017, totalling 316 studies. In the following years, the trend fluctuated, showing alternating patterns of growth and decline. Notably, by August 15, 2024, 153 e-government publications had already been indexed in S

**Table 1** Number of e-government publications by years

| Year | TP | NCP | TC | C/P | C/CP | h | g |
|---|---|---|---|---|---|---|---|
| 2024 | 153 | 35 | 60 | 0.39 | 1.71 | 3 | 4 |
| 2023 | 289 | 155 | 612 | 2.12 | 3.95 | 11 | 15 |
| 2022 | 272 | 206 | 1575 | 5.79 | 7.65 | 19 | 29 |
| 2021 | 268 | 209 | 1917 | 7.15 | 9.17 | 23 | 33 |
| 2020 | 287 | 236 | 3105 | 10.82 | 13.16 | 26 | 44 |
| 2019 | 279 | 247 | 3388 | 12.14 | 13.72 | 29 | 47 |
| 2018 | 252 | 226 | 3436 | 13.63 | 15.20 | 29 | 49 |
| 2017 | 316 | 272 | 4741 | 15.00 | 17.43 | 36 | 58 |

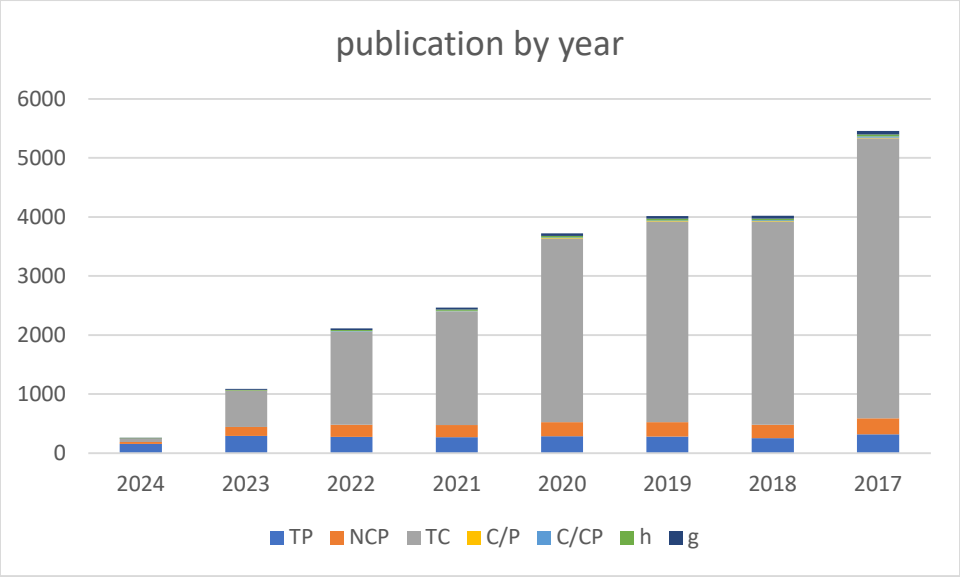



Fig. 2 Annual publication by years

### 4.2 Main Affiliations

Table 2 shows the top institutions contributing to e-government research. Universitas Indonesia is ranked first with 17 publications, followed by Jiangxi University of Science and Technology, China (16), Universitas Amikom (11), Universitas Budi Luhur (11), Institut Teknologi Sepuluh Nopember (10), Indian Institute of Management Kozhikode (9), Universidad Técnica de Ambato (9), Yarmouk University (9), University of Münster (8), and Rauf Denktas University (8).

Table 2 Most Influential Institutions with their number of publications

| TP | Affiliation | Country | NCP | TC | C/P | C/CP | h | g |
|---|---|---|---|---|---|---|---|---|
| 17 | Universitas Indonesia, | Indonesia | 16 | 107 | 6.29 | 6.69 | 6 | 9 |
| 16 | Jiangxi University of Science and Technology | China | 10 | 98 | 6.13 | 9.80 | 5 | 9 |
| 11 | Universitas Amikom Purwokerto | Indonesia | 9 | 139 | 12.64 | 15.44 | 8 | 9 |
| 11 | Universitas Budi Luhur | Indonesia | 4 | 36 | 3.27 | 9.00 | 3 | 4 |
| 10 | Institut Teknologi Sepuluh Nopember | Indonesia | 10 | 143 | 14.30 | 14.30 | 7 | 10 |
| 9 | Indian Institute of Management Kozhikode, | India | 8 | 114 | 12.67 | 14.25 | 4 | 8 |
| 9 | Universidad Técnica de Ambato, | Ambato | 8 | 60 | 6.67 | 7.50 | 4 | 7 |
| 9 | Yarmouk University | Jordan | 7 | 78 | 8.67 | 11.14 | 3 | 7 |
| 8 | University of Münster | Germany | 7 | 117 | 14.63 | 16.71 | 4 | 7 |
| 8 | Rauf Denktas University, | Cyprus | 8 | 69 | 8.63 | 8.63 | 5 | 8 |

### 4.3 Subject Area

The primary areas of e-government research were evaluated on the basis of (a) subject areas, (b) total publications (TP), and (c) corresponding percentages.

Table 3 categorizes the documents by subject area, demonstrating the diverse range of disciplines involved in e-government research. Computer Science dominates the publication landscape, representing 63.99% (1,354 documents), followed by Social Sciences at 39.60%. Other significant subject areas, each with over 100 publications, include Business, Management and Accounting; Engineering; Decision Science; Mathematics and Econometrics, Economics, and Finance. In contrast, fields such as Environmental Science, Energy, Arts and Humanities, and Medicine have fewer than 100 publications related to e-government.

Table 3 Subject Areas of E-government Research

| Subject Area | TP | % |
|---|---|---|
| Computer Science | 1354 | 63.99% |
| Social Sciences | 838 | 39.60% |
| Business, Management and Accounting | 425 | 20.09% |
| Engineering | 390 | 18.43% |
| Decision Sciences | 358 | 16.92% |
| Mathematics | 203 | 9.59% |
| Economics, Econometrics and Finance | 138 | 6.52% |
| Environmental Science | 79 | 3.73% |
| Energy | 69 | 3.26% |
| Arts and Humanities | 61 | 2.88% |
| Physics and Astronomy | 52 | 2.46% |
| Medicine | 48 | 2.27% |
| Materials Science | 33 | 1.56% |
| Psychology | 30 | 1.42% |
| Earth and Planetary Sciences | 24 | 1.13% |
| Multidisciplinary | 15 | 0.71% |
| Agricultural and Biological Sciences | 12 | 0.57% |
| Chemical Engineering | 12 | 0.57% |
| Biochemistry, Genetics and Molecular Biology | 8 | 0.38% |
| Chemistry | 6 | 0.28% |
| Health Professions | 3 | 0.14% |
| Nursing | 3 | 0.14% |
| Immunology and Microbiology | 2 | 0.09% |
| Neuroscience | 2 | 0.09% |
| Pharmacology, Toxicology and Pharmaceutics | 2 | 0.09% |

### 4.4 Sources and Document Types

The study analyzed the publication sources of e-government research and found that articles were the most dominant, accounting for 1,084 (51.23%) of the total, followed by conference papers (n = 794; 37.52%), representing a difference of nearly 13%. Book chapters, reviews, and other document types collectively comprised less than 5% of the total. Despite being less frequently used, these sources are still scientifically valuable and can provide important insights for shaping e-government policy development.

Table 4Document Type

| Document Type | TP | % |
|---|---|---|
| Article | 1084 | 51.23% |
| Conference Paper | 794 | 37.52% |
| Book Chapter | 159 | 7.51% |
| Review | 50 | 2.36% |
| Book | 8 | 0.38% |
| Conference Review | 8 | 0.38% |
| Editorial | 5 | 0.24% |
| Erratum | 5 | 0.24% |
| Data Paper | 1 | 0.05% |
| Note | 1 | 0.05% |
| Short Survey | 1 | 0.05% |

Notes: TP=total number of publications; % = percentage

### 4.5 Analysis of the Keywords

Keyword analysis operates under the assumption that the keywords selected by the authors are a reliable representation of the subject matter (Abdullahi, 2021; Comerio & Strozzi, 2019). The co-occurrence of two or more keywords within a single article indicates a relationship between these terms. Table 5 presents the most commonly used keywords in e-government research. Excluding 'e-government,' the most frequently appearing keyword was found in 1,264 documents, followed by another with 591 occurrences and a third with 186 instances. The term "e-government" was used both in its full and abbreviated forms, as well as interchangeably in singular and plural variations. Other frequently used keywords in e-government studies, appearing in over 100 documents, include government data processing, e-government services, information services, public administration, developing countries, and information systems. Additional keywords frequently appearing in over 50 e-government publications include: (a) Electronic Government, (b) Information Use, (c) Website, (d) Public Service, (e) E-government System, (f) Adoption, (g) Trust, (h) Decision Making, (i) Information and Communication Technologies, (j) Information Management, (k) Corruption, (l) Government Services, (m) Surveys, (n) Local Government, (o) E-government Implementation, (p) Digital Transformation, (q) Government, (r) E-participation, (s) Government Website, (t) Public Sector, (u) Transparency, and (v) Digital Government. The keywords primarily focused on governance-related themes. This study employed the VOSviewer software for keyword and co-occurrence analysis. VOSviewer, a tool designed for constructing and visualizing bibliometric networks, was used to identify the keywords in each publication. Figure 3 presents a keyword map generated by VOSviewer, visually representing the strength of the keyword relationships through variations in color, circle size, font, and line thickness. Keywords with similar thematic content are generally grouped and share the same color.

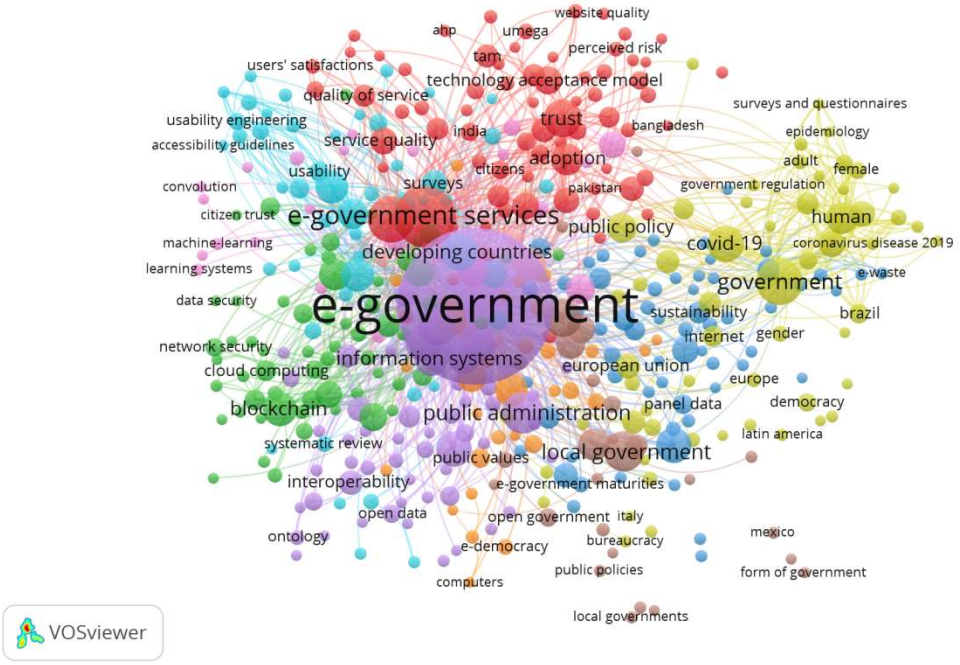



Fig. 3. Visual map of All keywords

**Table 5** Keywords in E-government Research and Their Frequency

| Keywords | TP | % |
|---|---|---|
| E-government | 1264 | 59.74% |
| E-Government | 591 | 27.93% |
| Government Data Processing | 268 | 12.67% |
| E-government Services | 264 | 12.48% |
| E-governments | 186 | 8.79% |
| Information Services | 176 | 8.32% |
| Public Administration | 124 | 5.86% |
| Developing Countries | 114 | 5.39% |
| Information Systems | 110 | 5.20% |
| Electronic Government | 98 | 4.63% |
| Information Use | 93 | 4.40% |
| Websites | 92 | 4.35% |
| Public Services | 83 | 3.92% |
| E-government Systems | 80 | 3.78% |
| Adoption | 77 | 3.64% |
| Trust | 76 | 3.59% |
| Decision Making | 74 | 3.50% |
| Information And Communication Technologies | 71 | 3.36% |
| Information Management | 69 | 3.26% |

| | | |
|---|---|---|
| Corruption | 66 | 3.12% |
| Government Services | 63 | 2.98% |
| Surveys | 63 | 2.98% |
| Local Government | 62 | 2.93% |
| E-government Implementation | 60 | 2.84% |
| Digital Transformation | 58 | 2.74% |
| Government | 56 | 2.65% |
| E-participation | 55 | 2.60% |
| Government Websites | 55 | 2.60% |
| Public Sector | 54 | 2.55% |
| Transparency | 54 | 2.55% |
| Digital Government | 51 | 2.41% |
| Artificial Intelligence | 50 | 2.36% |
| Blockchain | 50 | 2.36% |
| E-government Adoptions | 50 | 2.36% |
| Government IS | 50 | 2.36% |
| Indonesia | 50 | 2.36% |
| ICT | 49 | 2.32% |
| E-governance | 48 | 2.27% |
| Interoperability | 47 | 2.22% |
| Economic And Social Effects | 46 | 2.17% |
| Big Data | 45 | 2.13% |
| E-services | 45 | 2.13% |
| Technology Acceptance Model | 45 | 2.13% |
| Social Media | 44 | 2.08% |
| Public Policy | 38 | 1.80% |
| Digital Divide | 37 | 1.75% |
| Sustainable Development | 37 | 1.75% |
| E-Government Applications | 36 | 1.70% |
| Information Technology | 36 | 1.70% |
| Quality Of Service | 35 | 1.65% |
| Literature Reviews | 34 | 1.61% |
| Service Quality | 34 | 1.61% |
| Smart City | 34 | 1.61% |
| Crime | 33 | 1.56% |
| E-Government Maturity | 33 | 1.56% |
| Electronic government (e-government) | 33 | 1.56% |
| Perceived Usefulness | 33 | 1.56% |
| Cloud Computing | 32 | 1.51% |
| Internet | 32 | 1.51% |
| Technology Adoption | 32 | 1.51% |
| Systematic Literature Review | 31 | 1.47% |
| Social Networking (online) | 30 | 1.42% |

| | | |
|---|---|---|
| COVID-19 | 29 | 1.37% |
| Digitalization | 29 | 1.37% |
| Web Design | 28 | 1.32% |
| Behavioral Research | 27 | 1.28% |
| E-government Adoption | 27 | 1.28% |
| Human | 27 | 1.28% |
| Public Values | 27 | 1.28% |
| Satisfaction | 27 | 1.28% |
| Structural Equation Modeling | 27 | 1.28% |
| Usability | 27 | 1.28% |
| Electronic Commerce | 26 | 1.23% |
| Government Information | 26 | 1.23% |
| Information And Communication Technology | 26 | 1.23% |
| Information Quality | 26 | 1.23% |
| Security | 26 | 1.23% |
| TAM | 26 | 1.23% |
| Accessibility | 25 | 1.18% |
| Case-studies | 25 | 1.18% |
| Data Mining | 25 | 1.18% |
| Data Privacy | 25 | 1.18% |
| Government Projects | 25 | 1.18% |
| Privacy | 25 | 1.18% |
| Quality Control | 25 | 1.18% |
| Citizens | 24 | 1.13% |
| India | 24 | 1.13% |
| Laws And Legislation | 24 | 1.13% |
| Network Security | 24 | 1.13% |
| Online Service | 24 | 1.13% |
| Public Value | 24 | 1.13% |
| China | 23 | 1.09% |

This section explores the collaboration landscape and highlights the leading institutions engaged in e-government research. Universiti Sains Malaysia has surpassed Universiti Teknologi Mara to become the second-highest-ranked university, demonstrating its significant involvement in e-government research. As shown in Table 6, Universitas Indonesia remains the top contributor to e-government publications.

**Table 6** Institutions Contributing More Than 20 E-government Research Documents

| Institution | TP | Country | NCP | TC | C/P | C/CP | h | g |
|---|---|---|---|---|---|---|---|---|
| Universitas Indonesia | 34 | Indonesia | 30 | 300 | 8.82 | 10.00 | 16 | 5 |
| Universiti Sains Malaysia | 23 | Malaysia | 17 | 225 | 9.78 | 13.24 | 8 | 14 |
| Universiti Teknologi MARA | 21 | Malaysia | 18 | 74 | 3.52 | 4.11 | 5 | 7 |
| Yarmouk University | 19 | Jordan | 14 | 287 | 15.11 | 20.50 | 8 | 14 |
| Qatar University | 18 | Qatar | 18 | 376 | 20.89 | 20.89 | 11 | 18 |
| University of Cape Town | 17 | Ghana | 13 | 36 | 2.12 | 2.77 | 3 | 5 |
| Universiti Utara Malaysia | 17 | Malaysia | 15 | 172 | 10.12 | 11.47 | 6 | 13 |
| Bina Nusantara University | 17 | Indonesia | 11 | 31 | 1.82 | 2.82 | 4 | 4 |
| Institut Teknologi Sepuluh Nopember | 15 | Indonesia | 13 | 159 | 10.60 | 12.23 | 8 | 12 |
| Universitas Muhammadiyah Yogyakarta | 15 | Indonesia | 7 | 82 | 5.47 | 11.71 | 2 | 7 |
| University of Münster | 14 | Germany | 13 | 160 | 11.43 | 12.31 | 5 | 12 |
| Universidad Nacional Mayor de San Marcos | 14 | Peru | 12 | 83 | 5.93 | 6.92 | 5 | 8 |
| Universidad Técnica de Ambato | 14 | Ecuador | 30 | 300 | 21.43 | 10.00 | 10 | 6 |
| Indian Institute of Management, Ranchi | 14 | India | 11 | 220 | 15.71 | 20.00 | 6 | 11 |
| Universiti Teknologi Malaysia | 13 | Malaysia | 12 | 172 | 13.23 | 14.33 | 6 | 12 |
| Tsinghua University | 13 | China | 9 | 120 | 9.23 | 13.33 | 6 | 9 |
| Huazhong University of Science and Technology | 13 | China | 10 | 106 | 8.15 | 10.60 | 6 | 10 |
| Universidade de Aveiro | 12 | Portugal | 10 | 138 | 11.50 | 13.80 | 5 | 10 |
| Kuwait University | 12 | Kuwait | 8 | 66 | 5.50 | 8.25 | 5 | 8 |
| Lembaga Ilmu Pengetahuan Indonesia | 12 | Indonesia | 11 | 100 | 8.33 | 9.09 | 5 | 9 |
| Indian Institute of Management, Kozhikode | 12 | India | 11 | 220 | 18.33 | 20.00 | 6 | 11 |

### 4.6 Publication by countries

To identify the leading countries, universities, and researchers contributing to e-government research, this study analyzed publication trends and their overall impact. To answer the second research question, publications were categorized by country section analyzes the present state of collaboration and identifies the most prominent countries in e-government research. Table 7 lists the top countries in the field, with Indonesia leading (n = 263), followed by China (n = 187), Malaysia (n = 143), and the USA (n = 129). In terms of citation impact, China

ranks highest with 2,615 citations, followed by the USA (1,942), Australia (1,607), and Indonesia (1,543). After analyzing the total number of publications for each country, the study shifted its focus to authorship to provide further insights into the second research question.

**Table 7** *41 Top Countries with the Highest Number of E-government Documents*

| Country | TP | NCP | TC | C/P | C/CP | h |
|---|---|---|---|---|---|---|
| Indonesia | 263 | 180 | 1543 | 5.87 | 8.57 | 19 |
| China | 187 | 137 | 2615 | 13.98 | 19.09 | 26 |
| Malaysia | 143 | 112 | 1195 | 8.36 | 10.67 | 18 |
| United States | 129 | 92 | 1447 | 11.22 | 15.73 | 19 |
| India | 122 | 89 | 1247 | 10.22 | 14.01 | 20 |
| United Kingdom | 98 | 84 | 1942 | 19.82 | 23.12 | 21 |
| South Africa | 80 | 60 | 931 | 11.64 | 15.52 | 13 |
| Spain | 80 | 68 | 816 | 10.20 | 12.00 | 15 |
| Saudi Arabia | 72 | 55 | 817 | 11.35 | 14.85 | 16 |
| Jordan | 64 | 48 | 638 | 9.97 | 13.29 | 15 |
| South Korea | 57 | 96 | 1429 | 25.07 | 14.89 | 22 |
| Germany | 54 | 84 | 1053 | 19.50 | 12.54 | 17 |
| Australia | 53 | 90 | 1607 | 30.32 | 17.86 | 21 |
| Greece | 46 | 84 | 908 | 19.74 | 10.81 | 17 |
| Portugal | 45 | 32 | 319 | 7.09 | 9.97 | 10 |
| Russian Federation | 44 | 30 | 180 | 4.09 | 6.00 | 7 |
| Turkey | 40 | 31 | 452 | 11.30 | 14.58 | 8 |
| Ecuador | 36 | 29 | 141 | 3.92 | 4.86 | 7 |
| Brazil | 34 | 22 | 143 | 4.21 | 6.50 | 7 |
| Italy | 34 | 29 | 417 | 12.26 | 14.38 | 9 |
| Peru | 32 | 25 | 116 | 3.63 | 4.64 | 6 |
| Sweden | 31 | 29 | 800 | 25.81 | 27.59 | 11 |
| Viet Nam | 30 | 19 | 105 | 3.50 | 5.53 | 7 |
| Iraq | 28 | 19 | 126 | 4.50 | 6.63 | 5 |
| Pakistan | 28 | 27 | 510 | 18.21 | 18.89 | 13 |
| Netherlands | 27 | 22 | 482 | 17.85 | 21.91 | 11 |
| United Arab Emirates | 27 | 21 | 248 | 9.19 | 11.81 | 9 |
| Canada | 26 | 24 | 213 | 8.19 | 8.88 | 7 |
| Colombia | 24 | 22 | 213 | 8.88 | 9.68 | 7 |
| Czech Republic | 23 | 19 | 154 | 6.70 | 8.11 | 7 |
| Egypt | 23 | 20 | 215 | 9.35 | 10.75 | 6 |
| Ghana | 23 | 17 | 401 | 17.43 | 23.59 | 8 |
| Poland | 23 | 16 | 102 | 4.43 | 6.38 | 5 |
| Thailand | 23 | 16 | 102 | 4.43 | 6.38 | 5 |

| | | | | | | |
|---|---|---|---|---|---|---|
| Taiwan | 21 | 14 | 173 | 8.24 | 12.36 | 7 |
| Romania | 20 | 16 | 152 | 7.60 | 9.50 | 6 |
| Kuwait | 19 | 15 | 195 | 10.26 | 13.00 | 7 |
| Morocco | 19 | 12 | 28 | 1.47 | 2.33 | 3 |
| Serbia | 19 | 13 | 86 | 4.53 | 6.62 | 6 |
| Kazakhstan | 18 | 16 | 255 | 14.17 | 15.94 | 8 |
| Nigeria | 18 | 12 | 111 | 6.17 | 9.25 | 6 |

The primary sources of the documents analyzed in this study were journals, which accounted for the largest proportion (54.25%), followed by conference proceedings (30.48%). Book series and individual books made up a significant portion of the total publications, with 9.78% and 5.48%, respectively.

Table 8 *Source Type*

| Source Type | TP | % |
|---|---|---|
| Journal | 1148 | 54.25% |
| Conference Proceeding | 645 | 30.48% |
| Book Series | 207 | 9.78% |
| Book | 116 | 5.48% |

### 4.7 Most Active Source Title

A diverse range of academic journals, conferences, and books have published articles on e-government research. Table 9 highlights the most prolific sources for e-government publications, ranked by the total number of contributions, ACM International Proceedings ranks first with 130 publications, followed by the Journal of Electronic Government (60 publications), Lecture Notes in Computer Science (46 publications), and Government Information Quarterly (45 publications), *Key sources include Transforming Government: People, Process, and Policy (37 publications), Electronic Government Research (34 publications), Lecture Notes in Networks and Systems (28 publications), Communications in Computer and Information Science (26 publications), Proceedings of the Annual Hawaii International Conference (26 publications), Proceedings of the European Conference on E-Government (26 publications), Advances in Intelligent Systems and Computing (25 publications), and the International Journal of Electronic Governance and Sustainability (21 publications).* These sources collectively represent the most influential publications in the field of e-government research.

Table 9 shows the top 20 sources of publishing on E-government.

| Source Title | TP | Publisher | Cite Score | SJR 2018 | SNIP 2018 | TC |
|---|---|---|---|---|---|---|
| ACM International Conference Proceeding Series | 130 | | | | | 746 |
| Electronic Government | 60 | Inder Science Publisher | 2.3 | 0.279 | 0.64 | 404 |
| Lecture Notes In Computer Science Including Subseries Lecture Notes In Artificial Intelligence And Lecture Notes In Bioinformatics | 46 | Springer Nature | 2.6 | 0.606 | 0.59 | 299 |
| Government Information Quarterly | 45 | Elsevier | 15.7 | 2.171 | 2.979 | 2295 |
| Transforming the Government People Process And Policy | 37 | Emerald Publishing | 6.7 | 0.661 | 1.328 | 591 |
| International Journal Of Electronic Government Research | 34 | IGI Global Publishing | 2.6 | 0.294 | 0.554 | 359 |
| Lecture Notes In Networks And Systems | 28 | Springer Nature | 0.9 | 0.171 | 0.282 | 357 |
| Communications In Computer And Information Science | 26 | Springer Nature | 1.1 | 0.203 | 0.246 | 391 |
| Proceedings Of The Annual Hawaii International Conference On System Sciences | 26 | | | | | 18 |
| Proceedings Of The European Conference On E Government Eceg | 26 | | | | | 69 |
| Advances In Intelligent Systems And Computing | 25 | Springer Nature | 0.9 | 0.215 | 0.373 | 69 |
| International Journal Of Electronic Governance | 21 | Inder Science Publisher | 1.3 | 0.238 | 3.371 | 133 |
| Sustainability Switzerland | 21 | multidisciplinary digital Publishing Institute | 6.8 | 0.672 | 1.086 | 147 |
| Electronic Journal Of Information Systems In Developing Countries | 20 | little lion Scientific | 1.1 | 0.174 | 0.284 | 69 |
| Journal Of Theoretical And Applied Information Technology | 20 | John Willey & sons | 2.6 | 0.441 | 0.882 | 517 |
| International Journal Of Public Administration | 18 | Taylor and Francis | 4.7 | 0.614 | 1.107 | 140 |

| Source Title | TP | Publisher | Cite Score | SJR 2018 | SNIP 2018 | TC |
|---|---|---|---|---|---|---|
| Aip Conference Proceedings | 16 | Conference Proceeding | 0.5 | 0.152 | 0.291 | 179 |
| Journal Of Physics Conference Series | 15 | Confrence Proceeding | 1.2 | 0.18 | 0.303 | 44 |
| Ceur Workshop Proceedings | 14 | Confrence Proceeding | 1.1 | 0.191 | 0.235 | 17 |
| IFIP Advances In Information And Communication Technology | 14 | Confrence Proceeding | 4.5 | 0.505 | 0.871 | 207 |
| Procedia of Computer Science | 14 | AIST | 0.7 | 0.134 | 0.212 | 21 |

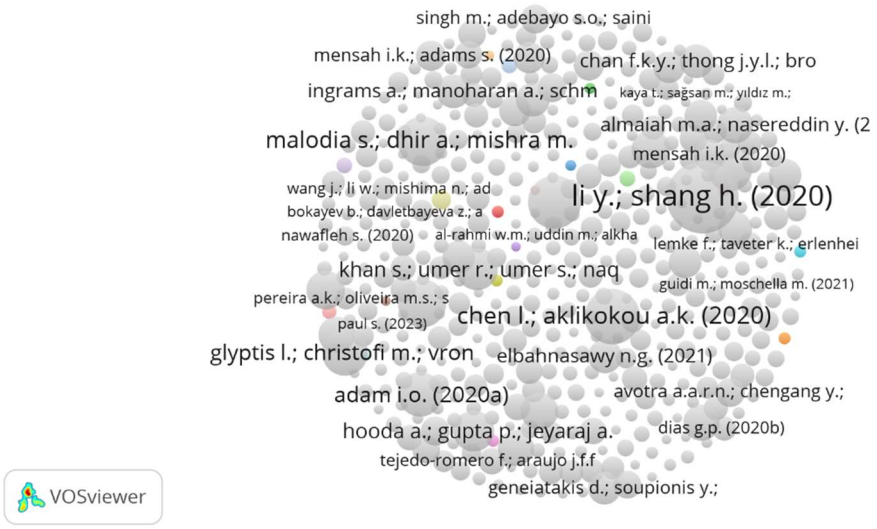



Fig 4. Visual Map of citation by document: Minimum Number of*;* Minimum number of citations of a document= 4

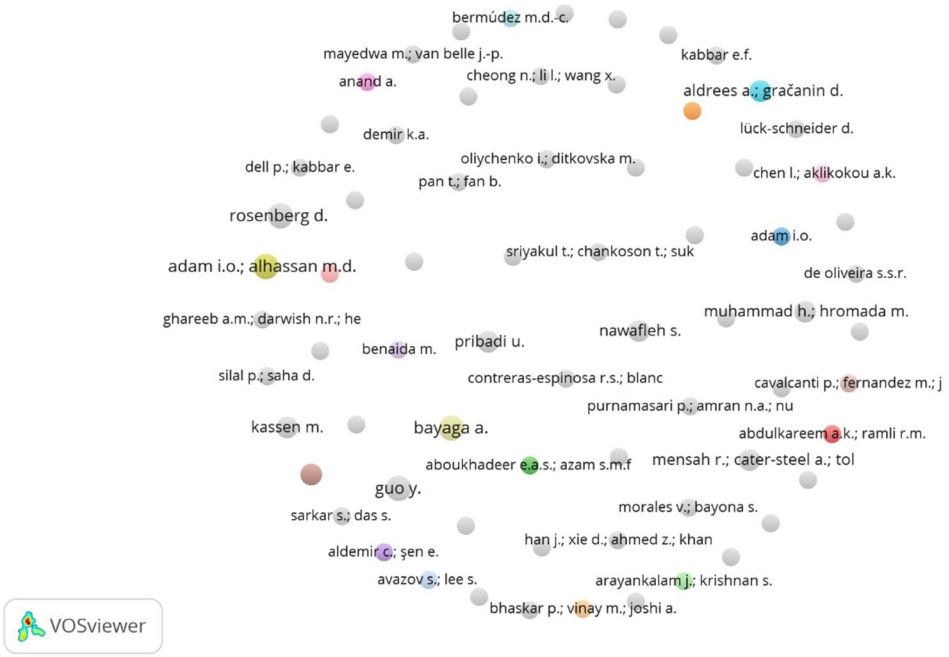



Fig. 5 *Visual* Map of Citation by Authors

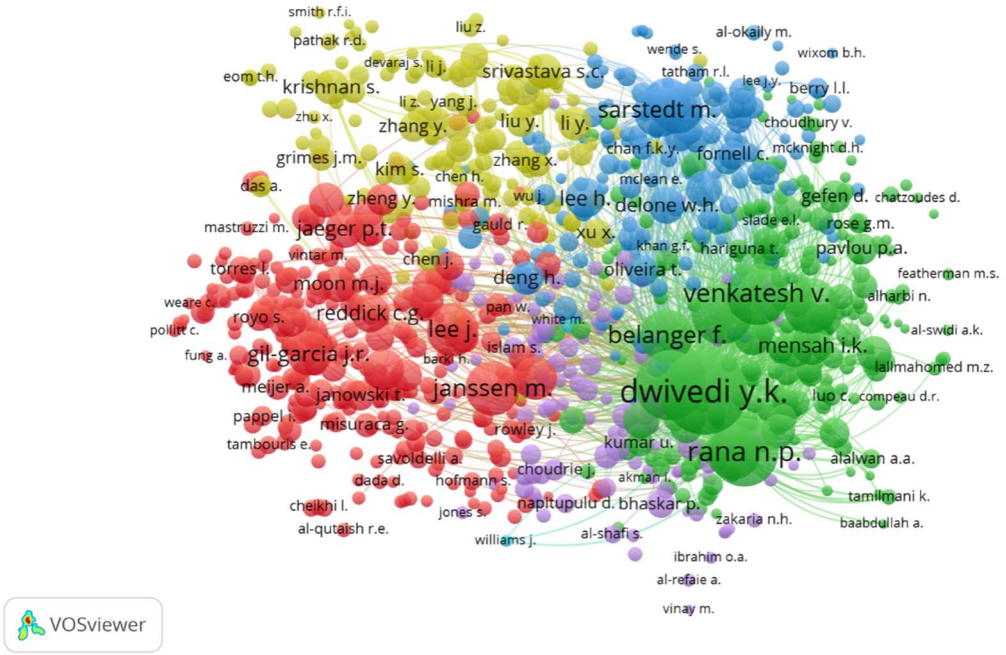



Fig 6 Visual Map of Co-Citation by Authors

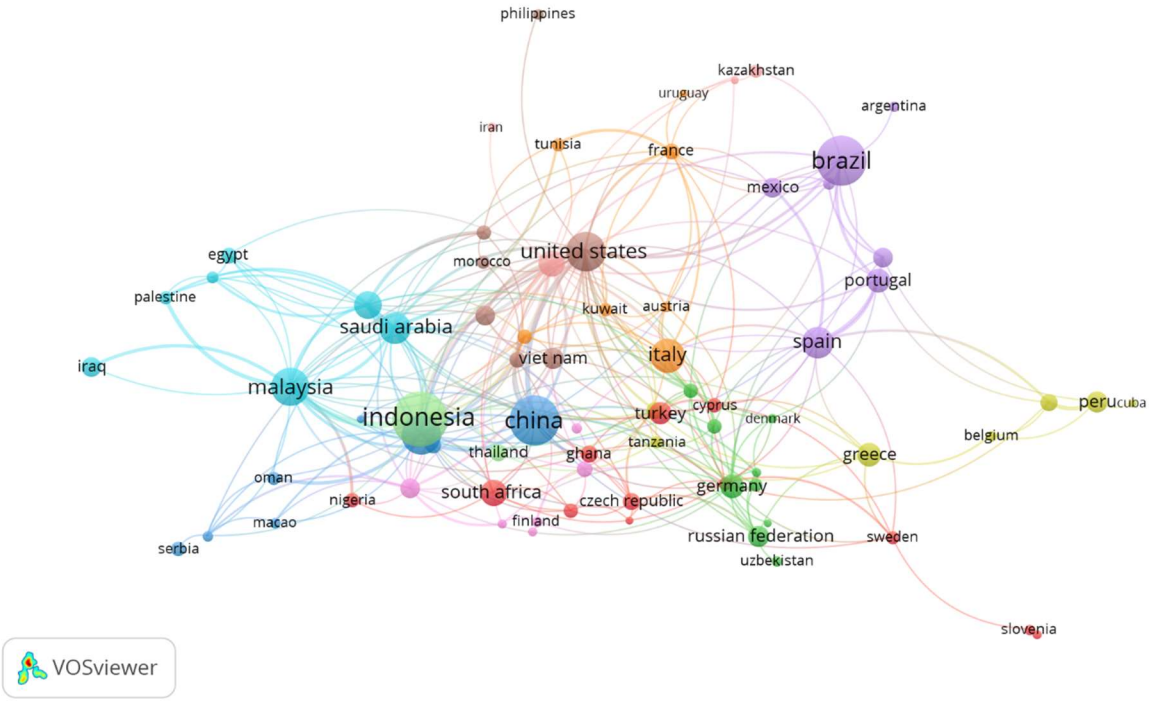



Fig 6 Visual Map of Co-Authorship by Countries Minimum number of documents by Authors = *4*

## 5.1 Discussion

Acknowledging e-government's potential to close the digital divide and enhance public service delivery, this study was conducted, E-government is also seen as a strategy for promoting transparency and accountability in governance (Sulaiman et al., 2022). However, despite the expanding body of research, questions remain regarding its interdisciplinary nature and the extent of global collaboration. Ensuring inclusivity by integrating diverse perspectives from various local contexts is essential for the effective implementation of e-government (Etebom, 2024). To fill these identified gaps, a bibliometric analysis was performed on 2,119 e-government publications from the Scopus database, spanning 2017 to August 15, 2024. This study sought to answer the following five core research questions (i) the emerging trends and key contributions in e-government research, (ii) the leading countries, institutions, and authors in this field, (iii) the most influential publications in e-government research, (iv) the main themes and areas of focus within e-government research, and (v) the potential avenues for future research in this domain. The analysis indicates a relatively high level of research activity on emerging trends and major contributions in e-government, although publication numbers have fluctuated over time. Most of these studies are published in English and originate from 76 different countries.

Regarding the second research question, the leading countries contributing to the e-government literature are Indonesia, China, Malaysia, the United States, and India, with 263, 187, 143, 129, and 122 publications, respectively (Table 7). The data suggest that e-government research is more concentrated in Asian countries and spans fields such as Computer Science (63.99%), Social Sciences (39.60%), Business, Management, and Accounting (20.09%), and Engineering (18.43%). Universitas Indonesia is the top institution in this area, contributing 18 publications and approximately 107 citations. Jiangxi University of Science and Technology, China, followed with 16 publications, while

Universitas Amikom Purwokerto and Universitas Budi Luhur each had 11 publications. Citation matrices were used to evaluate the impact of e-government research, showing significant growth with 2,119 articles and over 18,000 citations recorded in Scopus as of August 15, 2024.

To address the third research question, the study reviewed various academic journals, conferences, and books related to e-government research. Government Information Quarterly and Sustainability Switzerland received the highest number of citations per article, indicating their significant influence in the field. These journals are among the most productive sources for scholarly research on e-government, as shown in Table 9, which ranks journals by their number of e-government publications. Government Information Quarterly is a highly influential journal in the field of e-government, serving as a valuable resource for both academics and practitioners. Further analysis reveals that e-government research is largely collaborative, presenting opportunities for future exploration in this area. Co-authorship often serves as an indicator of collaboration, reflecting active engagement between researchers (Adam, 2013). This study found evidence of extensive collaboration in e-government research among scholars, institutions, and countries. Consistent with the findings of Zhu et al. (2018), most collaborations in e-government research are internal to institutions, with limited international collaboration.

While there is evidence of robust cross-country collaboration, proximity appears to have influenced the formation of these partnerships. E-government research in Asia, China, the USA, and the UK exhibited Top levels of collaboration, whereas collaboration in Africa was limited. This geographical concentration may restrict a broader understanding of e-government, indicating the need to consider geographical, economic, institutional, and cultural factors to facilitate wider adoption and impact.

Collaboration is essential for adapting e-government to local contexts and providing strategic guidance for its effective design, management, and implementation (Ratnaria et al., 2020). Collaborative efforts enhance the transfer, integration, and reinforcement of knowledge. Countries can benefit from shared experiences and insights to optimize the potential of e-government and refine implementation strategies. Partnerships with leading universities and experts in the field can also boost academic standing and increase the visibility of research publications.

Successful e-government implementation relies on knowledge spillover, which is closely connected to knowledge transfer and reinforcement. While collaboration in e-government research is evident, the extent of partnerships between universities in less developed regions remains unclear. International cooperation among countries, institutions, and researchers can promote knowledge and technology exchange, significantly contributing to global economic development. It is also important to investigate how collaborations in e-government research manage and protect intellectual property, which is essential for preserving and regulating original innovations.

## 5.2 Conclusion

A bibliometric analysis was conducted to review e-government research publications from 2017 to August 15, 2024. This research offered an in-depth analysis of e-government studies by exploring trends, core themes, collaborations, and multiple aspects, including yearly publication patterns, source journals, languages, subject areas, keywords, document titles, contributing nations, leading institutions, authorship trends, and citation metrics. The findings illustrate the broad application of e-government research, which involves contributions from scholars across multiple countries and demonstrates consistent growth and dissemination. The interdisciplinary nature of e-government research has encouraged collaboration and innovation, leading to the development of new ideas and perspectives within the field.

Collaboration among scholars and institutions globally has been increasing, emphasizing the value of integrating diverse perspectives from various economic, cultural, and institutional contexts. The growing interest in online courses worldwide further underscores the expanding focus on e-government and its potential to address the challenges associated with its implementation. However, collaboration and communication in e-government research often remain geographically concentrated, limiting the exchange of knowledge and perspectives across countries that could greatly benefit from these initiatives.

The conceptual implications of this research lie in its comprehensive mapping of the e-government research domain. By revealing dominant themes, influential actors, and collaborative networks, this study offers a framework for understanding the intellectual structure of the field. Theoretically, the findings reinforce the importance of interdisciplinary approaches to e-government research and highlight the role of collaborative knowledge creation in addressing complex challenges. In relation to previous studies, this analysis confirms the ongoing growth and increasing sophistication of e-government research, aligning with the findings of Song et al., (2024). However, unlike earlier studies that focused on specific regions or aspects of e-government, this research provides a broader, global perspective. The emphasis on collaborative networks and the identification of research gaps related to geographical disparities offer new insights not fully addressed in prior literature. Further research is needed to explore these disparities and to develop more inclusive and contextually relevant approaches to e-government research and implementation.

## NOTES

TP=total number of publications; NCP=number of cited publications; TC=total citations; C/P=average citations per publication; C/CP=average citations per cited publication; h=h-index; and g=g-index.

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